

**REMARKS**

This paper is responsive to the Office Action mailed April 22, 2008. Claims 1, 3-8, 10-14 and 16 are currently pending. Claims 1, 3-8, 10-14 and 16 have been rejected. Claims 1, 6, 10 and 16 have been amended. Support for all amended claims can be found in the specification, and no new matter has been added by these amendments. Reconsideration of the claims in view of the amendments and the following remarks is respectfully requested.

**Claim Rejections Under 35 U.S.C. § 103**

Claims 1, 6, 10, 14 and 16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Publication No. 2003/023019 to *Soltis* in view of U.S. Patent Publication No 2003/0097607 to *Bessire* and U.S. Patent Publication No. 2003/0237019 to *Kleiman*. Claims 3-5, 7, and 13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Soltis*, *Bessire* and *Kleiman* in view of U.S. Patent No. 7,134,040 issued to *Ayres*. Claim 8 is rejected under 35 U.S.C. § 103(a) as being unpatentable over *Soltis*, *Bessire*, *Kleiman* and *Ayres* in view of U.S. Patent Publication No. 2004/0098637 to *Duncan*. Claims 11 and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Soltis*, *Bessire* and *Kleiman* in view of U.S. Patent No. 5,948,062 issued to *Tzelnic*. Without conceding the merits of the rejection, Applicant respectfully submits that the amended claims overcome this rejection.

Claim 1, as amended, recites:

A computer system for transferring data from a first storage unit in a storage system to a second storage unit in a backup storage system via a network, said computer system comprising:

- a first controller provided in the storage system, which transfers data stored in said first storage unit, to said second storage unit using a block transfer protocol;
- a storage area network (SAN) through which the transfer of data using the block transfer protocol is performed to said second storage unit;
- a table provided at a server coupled to the network, wherein the table associates a file composed of a plurality of blocks of data with blocks of data constituting the file; and
- a second controller provided at the server, wherein, in response to information that identifies a particular data block to be transferred from said first controller via said SAN, identifies a file corresponding to the particular data block using said table and transfers the identified file to said second storage unit via a local area network (LAN) using a file transfer protocol,

wherein said SAN is configured to couple the first controller and the second controller and establish a path for data block transfer between said first storage unit and

said second storage unit using the data block transfer protocol between said first storage unit and said second storage unit and another path for file transfer between said first storage unit and said second storage unit using the file transfer protocol through the server and the LAN,

wherein said table is provided in said second controller of the server and receives, from said first controller of the storage system, information indicating whether the particular data block has been transferred to said second storage unit of the backup storage system successfully in units of data blocks to allow said second controller to select the another path when the information indicates an unsuccessful transfer of the particular data block.

As described in claim 1, the table in the second controller of the data transfer server receives information regarding the success of data block transfer from the first controller of the storage system. Furthermore, the second storage unit to which data blocks are to be transferred is part of a backup storage system which is separate from the data transfer server.

The Office Action states that in response to Applicant's Argument of January 15, 2008, the previous prior art rejection is withdrawn only as to the argument that *Soltis* and *Bassire* do not disclose "said table receives from said first controller information including whether the particular block has been transferred to said second storage unit successfully in units of data blocks."

*Kleiman* is cited to show a table (stripemap table 126) receiving information indicating whether a particular block (disk block 142) has been transferred to a second storage unit (disc 141) successfully in units of data blocks. (See paragraph [0048]).

In *Kleiman*, the stripemap table 126 includes one stripemap entry 127 for each RAID stripe, indicating whether the disk block 142 (from the failed disk 141) in the stripe 143 has migrated to another non-failing disk 141. When a particular disk block 142 has migrated, the storage system 140 recalculates parity on writes to that particular stripe. Thus, the stripemap table 126 relates to disk blocks, but not data blocks as described in claim 1.

*Kleiman* proposes to logically delete a failed disk from the file system 120 and the storage system 140. Applicant's system, as described in claim 1, is not related to failure of a disk in the storage system. Rather, claim 1 relates to failure of data block transfer to a backup storage system. If any disk failure occurs as in *Kleiman*, the failure will be recovered by the backup system but not the data transferring storage system.

Therefore, the stripemap table of *Kleiman* is different than the table described in claim 1 which associates a file composed of a plurality of data blocks with blocks of data constituting a file. The table in the second controller of a primary management server receives information regarding the success of a data block transfer from the first controller of the storage system. The second storage unit to which data blocks are to be transferred is part of a backup storage system which is separate from the server.

Neither *Soltis*, *Bessire*, *Kleiman* nor any of the other cited references, alone or in combination, disclose all of the features recited in independent claim 1. Specifically, neither *Soltis*, *Bessire* nor *Kleiman* disclose "a table provided at a server coupled to the network, wherein the table associates a file composed of a plurality of blocks of data with blocks of data constituting the file..., wherein said table is provided in said second controller of the server and receives, from said first controller of the storage system, information indicating whether the particular data block has been transferred to said second storage unit of the backup storage system successfully in units of data blocks to allow said second controller to select the another path when the information indicates an unsuccessful transfer of the particular data block." For at least this reason, claim 1 is allowable over the cited art.

Page 6 of the Office Action states: "Soltis does not show: identifying a particular block via the SAN, wherein said SAN couples the first and second controller to establish the paths, and wherein said table receives from said first controller information indicating whether the particular block has been transferred to said second storage unit successfully in units of data blocks." Page 6 of the Office Action also states: "Bessire shows that a first controller and a second controller may communicate over a network (see [0030]) and Soltis shows a finite number of networks (LAN 104 and SAN 128)."

*Bessire* discloses that "IPC is an exchange of data between processes, i.e. executing programs, either within the same computer or over a network... The processes can be running on the same computer or on a different computer connected through a network." One controller serves as a backup of the other controller using firmware. First and second controllers are provided in parallel between a server and a storage unit. The first and second controllers are

mutually monitored. When the first controller detects failure of the second controller, the first controller processes I/O request of the failed controller. (See paragraph [0030] and Fig. 3).

In contrast, as described in claim 1, the first controller is provided in a storage system and a second controller is provided in a server. The first and second controllers do not serve to back up mutually upon failure of the other controller. Thus, the controllers described in claim 1 are different from those disclosed in *Bessire* in configuration, connection and role.

Page 3, lines 7-9 of the Office Action states: "Regarding the argument that the combination of *Soltis* and *Bessire* does not disclose Applicant's configuration that 'a storage-side controller communicates with a server-side controller via a SAN' with 'the SAN also serving as a path for transferring a data block to a backup unit,' the Examiner first notes that this language is far more specific than what is required by the claims."

In view of this assertion, claim 1 has been amended to describe the SAN more specifically. Specifically, claim 1 recites "said SAN is configured to couple the first controller and the second controller and establish a path for data block transfer between said first storage unit and said second storage unit using the data block transfer protocol between said first storage unit and said second storage unit and another path for file transfer between said first storage unit and said second storage unit using the file transfer protocol through the server and the LAN." The SAN, as recited in claim 1, is advantageous to implement a data transfer method that is faster and more reliable than a general network.

*Soltis* discloses a finite number of networks (LAN 104 and SAN 128) which is a general example of backup or duplication networks. *Soltis* does not disclose a server and a storage system connected to a SAN. More specifically, *Soltis* does not disclose a SAN-based system in communication between a storage-side controller and a server-side controller. Therefore, the combination of *Soltis* and *Bessire* is improper to apply to claim 1 even apart from *Kleiman*.

Independent claims 6, 10 and 16, as amended, recite features that are similar to the features recited in amended claim 1. As discussed above with reference to claim 1, the cited art does not teach these features. Thus, claims 6, 10 and 16 are also allowable over the cited art for at least the same reasons, as well as on their own merits.

Claims 3-5, 7, 8 and 11-14 depend from one of claims 1, 6 and 10. As discussed above, claims 1, 6 and 10 are allowable. Thus, claims 3-5, 7, 8 and 11-14 are also allowable for at least the same reasons as well as on their own merits.

Accordingly, withdrawal of the rejection of claims 1, 3-8, 10-14 and 16 under 35 U.S.C. 103(a) is respectfully requested.

**CONCLUSION**

In view of the foregoing, Applicant believes all claims now pending in this application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 206-467-9600.

Respectfully submitted,

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